

**Remarks in Support of Patentability**

Applicant has amended the claims in an effort to obviate the 35 USC 112 rejections.

As respecting the rejection of the claims for allegedly failing to comply with the written description requirement, the claims had been drafted to address the spaced, open or hollow portions of the pump interior (that are separated by the diaphragm) as first and second chambers, with the first chamber being the portion below the diaphragm in Figures 4A and 4B and the second chamber being the portion above the diaphragm in these Figures.

Upon reviewing the prior amendments to the claims, it appears that there were typographical errors, namely some juxtaposition of the adjectives “first” and “second”, in the prior claim amendments, which led to confusion and the consequent rejection of claims 1 and 14 under both the first and second paragraphs of 35 USC 112. Applicant regrets these errors and the confusion caused thereby. Applicant has amended claims 1 and 14 in response to the Examiner’s comments and believes that claims 1 and 14 are now in full compliance with both the first and second paragraphs of 35 USC 112. Notification of the same is respectfully solicited.

Applicant has also amended, or cancelled, various ones of the claims depending, directly and indirectly, from independent claim 1, to provide internal consistency and to make these claims fully compliant with both the first and second paragraphs of 35 USC 112.

In light of the foregoing, reconsideration and withdrawal of all of the 35 USC 112 rejections of the claims is respectfully requested.

Applicant has also amended the claims in an effort to obviate the 35 USC 102(b) and 103(a) rejections.

All of the independent claims that are the subject of the various art-based rejections have been amended to recite, in various forms, the feature of the invention whereby the closure

provided by the ball portion (item 35 in the drawings) of the check valve at the inlet to the pump is within the spring (item 38 in the drawings) and is movable freely with respect to the spring, relative to the pump inlet defined by cylindrical opening 82 in Figures 4A and 4B. Exemplary is the language added to claim 1, namely “means, positioned within the resilient means and being freely movable with respect thereto towards and away from the inlet, for closing the inlet to flow of liquid color from the first chamber back into the container”.

In the same vein, the following language has been added to claim 49: “wherein the check valve is within the spring and is freely movable with respect thereto relative to the inlet for closing the inlet to flow of liquid color from the interior of the pumping means back into the container”. The remaining independent claims, namely claims 51 and 68, have been similarly amended.

Applicant respectfully notes that none of the references cited by the examiner show or suggest, in any manner, this structure that applicant has invented. While the references, notably United States patents 3,957,399 to Siczek, United States patent 2,606,696 to Miner, and United States patent 2,656,828 to Conover, show ball check valves and also show spring-biased diaphragms in diaphragm pumps, none of the references show or suggest placing the shutoff ball of a check valve within a spring that biases a diaphragm of a diaphragm pump, as per applicant’s invention. With this approach, applicant has solved the difficult problem of pumping liquid color material, which is a notoriously difficult material to handle, and has provided an efficient, compact pump structure that has enjoyed considerable commercial success.

Indeed, the references seem to teach exactly the opposite of what applicant has invented—to the extent any of the references (notably Siczek and Conover) show both a ball check valve in the same structure as a spring biased diaphragm of a diaphragm pump, the ball of

the check valve is spaced significantly away from the spring. This would be the obvious approach to one of ordinary skill in the art—positioning the ball of any check valve well away from a spring that biases a flexible, movable diaphragm, so that there is no danger of the moving ball fouling the biasing spring as diaphragm flexes, and concomitantly so that there is no danger of the biasing spring (which necessarily moves as it biases the flexing diaphragm) restraining the ball from its intended aperture-closing movement.

With applicant providing an inventive arrangement of the ball and spring that is not shown or suggested in the cited references, and which is contrary to the approach that would be dictated by conventional engineering practice, applicant respectfully submits that there is certainly no anticipation of applicant's claimed invention under 35 USC 102(b) and that applicant's claimed invention is quite unobvious when considered in light of the cited references. In view of this, reconsideration and withdrawal of the extant rejections of the claims, and notification of the allowability of the application, respectfully solicited.

To the extent there is any fee required in connection with the receipt, acceptance and/or consideration of this paper and/or any accompanying papers submitted herewith, please charge all such fees to Deposit Account 50-1943.

Respectfully submitted,

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BY: CHARLES N. QUINN

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